WHAT WE CLAIM IS:

1. An isolated nucleic acid drug comprising four pairs of hairpin loops, wherein each pair of hairpin loops is capable of inducing cell apoptosis.

2. The isolated nucleic acid drug of claim 1, wherein the nucleic acid is DNA.

3. The isolated nucleic acid drug of claim 2, wherein the DNA comprises the sense and antisense polynucleotide sequences of an AAV ITR.

4. The isolated nucleic acid drug of claim 3, wherein said AAV ITR has the sequence described in SEQ ID NO. 1.

5. The isolated nucleic acid drug of claim 1, further comprising at least one nuclear localization signal peptide.

6. The isolated nucleic acid drug of claim 5, wherein said nuclear localization signal peptide is associated with said nucleic acid drug via a PNA-clamp, wherein said PNA-clamp comprises a biotin molecule that is bound to a streptavidin molecule, wherein said streptavidin molecule comprises at least one nuclear localization signal peptide, and wherein said PNA-clamp anneals to a target sequence present in said nucleic acid drug.

7. The isolated nucleic acid drug of claim 5, wherein said nuclear localization signal peptide is selected from the group consisting of an SV40 nuclear localization signal peptide, a poly-L-lysine, an antennapedia peptide, a TAT peptide, a c-myc peptide, a VirD2 peptide, a nucleoplasmin peptide, an ARNT derived peptide and an M9 domain peptide.

8. An apoptosis-inducing formulation comprising a nucleic acid drug which comprises four pairs of hairpin loops.

9. The apoptosis-inducing formulation of claim 8, further comprising a DNase inhibitor.

10. A plasmid comprising a construct that comprises, 5'- to 3'-, (i) a first arm polynucleotide sequence, (ii) a spacer polynucleotide sequence, and (iii) a second arm polynucleotide sequence, wherein said second arm polynucleotide sequence is the complement of said first arm polynucleotide sequence and wherein said second arm polynucleotide sequence is in the opposite orientation of said first arm.

11. The plasmid of claim 10, wherein said construct is flanked by the same or different restriction sites.

12. The plasmid of claim 10, wherein said plasmid comprises at least two of said constructs.

13. The plasmid of claim 10, wherein said plasmid comprises at least four of said constructs.

14. The plasmid of claim 10, wherein said plasmid comprises at least six of said constructs.

15. The plasmid of claim 10, wherein said plasmid comprises at least ten of said constructs.

16. The plasmid of claim 10, wherein said plasmid comprises more than twelve of said constructs.

17. The plasmid of any one of claims 10-16, wherein each construct can be separated from each of the other constructs by exposing said plasmid

to one or more restriction enzymes that recognizes the restriction site sequences that flank each of said constructs.

18. A cell comprising the plasmid of any one of claims 10-16.

19. The cell of claim 18, wherein said cell is a bacterial cell, mammalian cell, viral cell, yeast cell or fungal cell.

20. The cell of claim 19, wherein said bacterial cell is an *E. coli* cell.

21. A nucleic acid drug, comprising (i) a PNA-clamp comprising a biotin molecule; (ii) a streptavidin molecule comprising at least one nuclear localization signal peptide; and (iii) an AAV ITR polynucleotide with a 5' end and a 3' end, wherein said PNA-clamp is hybridized to the 3'-end of said AAV ITR polynucleotide, wherein said AAV ITR folds into a pair of hairpin loops, wherein said biotin molecule is bound to said streptavidin molecule, and wherein said nucleic acid drug targets the nucleus or genome of a cell.

22. The nucleic acid drug of claim 21, wherein said nuclear localization signal peptide is selected from the group consisting of an SV40 nuclear localization signal peptide, a poly-L-lysine, an antennapedia peptide, a TAT peptide, a c-myc peptide, a VirD2 peptide, a nucleoplasmin peptide, an ARNT derived peptide and an M9 domain peptide.

23. The nucleic acid drug of claim 21, wherein said AAV ITR polynucleotide comprises the sequence described in SEQ ID NO. 1.

24. A cell comprising the nucleic acid drug of claim 1 or claim 21.

25. The cell of claim 24, wherein said cell is a bacterial cell, mammalian cell, viral cell, yeast cell or fungal cell.

26. The cell of claim 25, wherein said bacterial cell is an *E. coli* cell.

27. A method for producing a nucleic acid drug comprising, transforming a cell with the plasmid of any one of claims 10-16, incubating the cell under conditions that promote cell growth, isolating the plasmid DNA from the culture, adding at least one restriction enzyme to the isolated plasmid DNA to generate discreet constructs, and denaturing the discreet constructs into single-stranded nucleic acids, wherein the single-stranded nucleic acids hybridize to sequences present in their own strand as well as to complementary sequences in other single strands to produce said nucleic acid drug.

28. The method of claim 27, wherein said cell is a bacterial cell.

29. The method of claim 28, wherein said cell is an *E. coli* cell.

30. The method of claim 27, further comprising a PNA-clamp comprising a biotin molecule bound to a streptavidin molecule that comprises at least one nuclear localization signal peptide, wherein said PNA-clamp is hybridized to a sequence present in a part of said nucleic acid drug.

31. The method of claim 30, wherein said PNA-clamp is hybridized to a nucleic acid sequence present in the spacer portion of said nucleic acid drug.

32. A method for producing a nucleic acid drug comprising, using the polymerase chain reaction to amplify a polynucleotide sequence that comprises (i) a first arm polynucleotide sequence, (ii) a spacer polynucleotide

sequence, and (iii) a second arm polynucleotide sequence, wherein said second arm polynucleotide sequence is the complement of said first arm polynucleotide sequence and is in the opposite orientation of said first arm, isolating the amplification products from said polymerase chain reaction, denaturing the amplification products to form single strands and allowing said single strands to reanneal into hairpin-stem loop structures, wherein at least some of the reannealed structures comprise four pairs of hairpin loops, wherein the reannealed structures are the nucleic acid drugs.

33. The method of claim 32, wherein said first arm polynucleotide sequence has the sequence described in SEQ ID NO. 1, and wherein said second arm polynucleotide is the complement of the sequence described in SEQ ID NO. 1.

34. A method for delivering a nucleic acid drug to the genome of a cell, comprising, providing at least one target cell; and introducing at least one nucleic acid drug of claims 1, 6, 8 or 21 to said target cell, wherein said nucleic acid drug enters said target cell and is directed to the cell nucleus or genome.

35. The method of claim 34, wherein said cell is a eukaryotic or prokaryotic cell.

36. The method of claim 34, wherein said cell is a disease cell.

37. The method of claim 34, wherein said target cell does not contain a functional p53 protein.

38. The method of claim 36, wherein said target cell is a cancer cell.

39. A method for inducing apoptosis in tumor cells of a living animal, comprising, introducing at least one nucleic acid drug of claims 1, 6, 8 or 21

into said animal, wherein said nucleic acid drug enters and targets the genome of cells lacking a functional p53 protein, thereby inducing apoptosis of said cells.

40. The method of claim 39, wherein said nucleic acid drug is introduced into said animal by intravenous injection, topical application, aerosol, through the nasal mucosa, rectally, or orally.

41. The method of claim 39, wherein said animal is a mammal.

42. The method of claim 41, wherein said mammal is a mouse, rat, rabbit, cat, dog, pig, cattle, monkey, or human.

43. The method of claim 42, wherein said mammal is a human.

44. The method of claim 39, wherein said animal is a bird or reptile.